

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for manufacturing multimaterial parts, wherein the multimaterial contains a tough material component (B), selected from ferrous-based materials having Fe > 50 wt.% and nickel-based materials having Ni > 50 wt.%, in a desired distribution with a wear-resistant hard material component (A), comprising:

providing, a wear-resistant hard material component (A), comprising carbide-forming additives in a total proportion of 3-20 wt.%, based upon the weight of the wear-resistant hard material;

forming and densifying a green body from a tough material component (B), selected from ferrous-based materials having Fe > 50 wt.% and nickel-based materials having Ni > 50 wt.%, and the wear-resistant hard material component (A) by a process comprising hot isostatic pressing to form a substantially densified green body;

hot working the substantially densified green body to a hot working degree of at least 2, wherein the working degree is determined from the cross-sectional areas of the body prior to and after hot working, thereby obtaining a desired distribution between the tough material component (B) and the hard material component (A), thereby forming a hot worked multimaterial part, wherein said hot working comprises one or more of hot rolling, radial forging, or open forging.

2. (Previously presented) The method of claim 1, wherein the wear-resistant hard material component (A) and the tough material component (B) may be in a powderized, partially densified, or entirely solid state prior to said densifying of the green body.

3. (Previously presented) The method of claim 1, wherein the wear-resistant hard material component (A) is a ferrous-based material having Fe > 50 wt. % or, alternatively, is a mixture of a ferrous-based material and a ceramic material containing not more than 30 wt. % of a metallic binder, and wherein the hardness of the wear-resistant hard material component (A) is greater than HRC 35.

4. (Previously presented) The method of claim 1, wherein the hardness of the tough material component (B) is not greater than HRC 35.

5. (Previously presented) The method of claim 1, wherein prior to said densifying, the wear-resistant hard material component (A) is in a powderized state, and comprises (1) a ferrous metallic powder having a composition wherein Fe > 50 wt. % and containing 0.5-3.5 wt. % carbon, 0.5-15 wt. % chromium, 0-5 wt. % molybdenum, less than 2 wt. % manganese and less than 2 wt. % silicon, all based upon the weight of the ferrous metallic powder, and (2) not more than 50 wt. % of ceramic particulates, based upon the weight of the powderized wear-resistant hard material component (A), and an optional metallic binder in an amount not greater than 30 wt. %, based upon the weight of the powderized wear-resistant hard material

component (A), wherein the rest of the composition comprising impurities or trace amounts of different additives.

6. (Canceled)

7. (Canceled)

8. (Previously presented) The method of claim 2, wherein the wear-resistant hard material component (A) is a ferrous-based material having Fe > 50 wt. % or, alternatively, is a mixture of a ferrous-based material and a ceramic material containing not more than 30 wt. % of a metallic binder, and wherein the hardness of the wear-resistant hard material component (A) is greater than HRC 35.

9. (Previously presented) The method of claim 3, wherein the hardness of the wear-resistant hard material component (A) is greater than HRC 50.

10. (Previously presented) The method of claim 8, wherein the hardness of the wear-resistant hard material component (A) is greater than HRC 50.

11. (Previously presented) The method of claim 2, wherein the hardness of the tough material component (B) is not greater than HRC 35.

12. (Previously presented) The method of claim 11, wherein the hardness of the tough material component (B) is not greater than HRC 25.

13. (Previously presented) The method of claim 3, wherein the hardness of the tough material component (B) is not greater than HRC 35.

14. (Previously presented) The method of claim 13, wherein the hardness of the tough material component (B) is not greater than HRC 25.

15. (Previously presented) The method of claim 2, wherein prior to said densifying, the wear-resistant hard material component (A) is in a powderized state, and comprises (1) a ferrous metallic powder having a composition wherein Fe > 50 wt. % and containing 0.5-3.5 wt. % carbon, 0.5-15 wt. % chromium, 0-5 wt. % molybdenum, less than 2 wt. % manganese and less than 2 wt. % silicon, all based upon the weight of the ferrous metallic powder and (2) not more than 50 wt. % of ceramic particulates, based upon the weight of the powderized wear-resistant hard material component (A), and an optional metallic binder in an amount not greater than 30 wt. %, based upon the weight of the powderized wear-resistant hard material component (A), wherein the rest of the composition comprising impurities or trace amounts of different additives.

16. (Previously presented) The method of claim 3, wherein prior to said densifying, the wear-resistant hard material component (A) is in a powderized state, and comprises (1) a ferrous metallic powder having a composition wherein Fe > 50 wt. % and containing 0.5-3.5 wt. % carbon, 0.5-15 wt. % chromium, 0-5 wt. % molybdenum, less than 2 wt. % manganese and less than 2 wt. % silicon, all based

upon the weight of the ferrous metallic powder and (2) not more than 50 wt. % of ceramic particulates, based upon the weight of the powderized wear-resistant hard material component (A), and an optional metallic binder in an amount not greater than 30 wt. %, based upon the weight of the powderized wear-resistant hard material component (A), wherein the rest of the composition comprising impurities or trace amounts of different additives.

17. (Previously presented) The method of claim 4, wherein prior to said densifying, the wear-resistant hard material component (A) is in a powderized state, and comprises (1) a ferrous metallic powder having a composition wherein Fe > 50 wt. % and containing 0.5-3.5 wt. % carbon, 0.5-15 wt. % chromium, 0-5 wt. % molybdenum, less than 2 wt. % manganese and less than 2 wt. % silicon, all based upon the weight of the ferrous metallic powder and (2) not more than 50 wt. % of ceramic particulates, based upon the weight of the powderized wear-resistant hard material component (A), and an optional metallic binder in an amount not greater than 30 wt. %, based upon the weight of the powderized wear-resistant hard material component (A), wherein the rest of the composition comprising impurities or trace amounts of different additives.

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Previously presented) The method of claim 3, wherein the ceramic material comprises a carbide, oxide, nitride, boride, or mixture thereof.

23. (Canceled)

24. (Previously presented) The method of claim 1, wherein said forming and densifying comprises charging said tough material component (B) and said wear-resistant hard material component (A) into a mold to form a green body, and densifying the green body by hot isostatic pressing to form the substantially densified green body.

25. (Previously presented) The method of claim 1, wherein said forming and densifying comprises forming a network structure of tough material component (B) in a mold using hot isostatic pressing, and then filling voids with wear-resistant hard material component (A).

26. (Previously presented) The method of claim 1, further comprising post-processing the hot worked multimaterial part by one or more of machining or heat treating, to form a post-processed material.

27. (Previously presented) The method of claim 26, further comprising joining the post-processed material to a manufactured part by one or more of brazing, gluing, welding, or mechanical joining techniques.

28. (Previously presented) The method of claim 1, wherein tough material component (B) is predensified.

29. (Previously presented) The method of claim 4, wherein the hardness of the tough material component (B) is not greater than HRC 25.

30. (Previously presented) The method of claim 1, wherein tough material component (B) is present in a volume proportion of 20-40 vol. %.